

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**



**HMMWV Rollovers are the number one killer of Soldiers in theater after combat actions and IEDs**

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **TERMINAL LEARNING OBJECTIVE**

**ACTION** – Prevent a HMMWV Rollover

**CONDITIONS** - In a classroom, provided instruction on preventive and reactive measures, crewman duties and emergency steps to take in case of a HMMWV rollover

**STANDARD** – The student properly identifies precautionary and reactive measures to take in case of a HMMWV rollover by answering the check-on-learning questions with a minimum of 80%.

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **OIF/OEF STATISTICS**

- **History: 288 HMMWV Rollovers have occurred OIF/OEF causing 82 Fatalities**

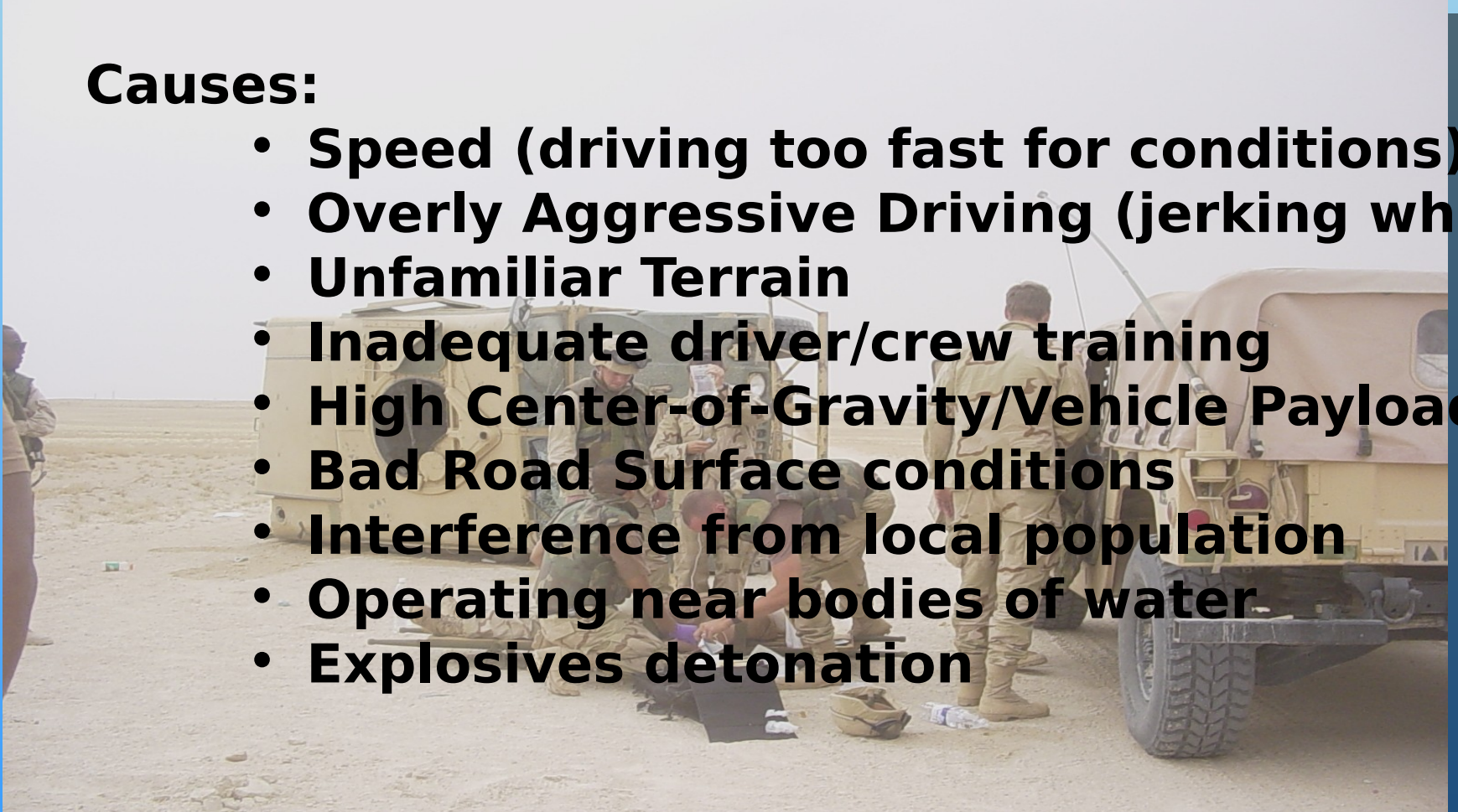


# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **UNDERSTANDING THE CAUSE**

### **Causes:**

- **Speed (driving too fast for conditions)**
- **Overly Aggressive Driving (jerking wheel)**
- **Unfamiliar Terrain**
- **Inadequate driver/crew training**
- **High Center-of-Gravity/Vehicle Payload**
- **Bad Road Surface conditions**
- **Interference from local population**
- **Operating near bodies of water**
- **Explosives detonation**



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

**SPEED**

**“TRAINING  
REDUCES  
PANIC!”**

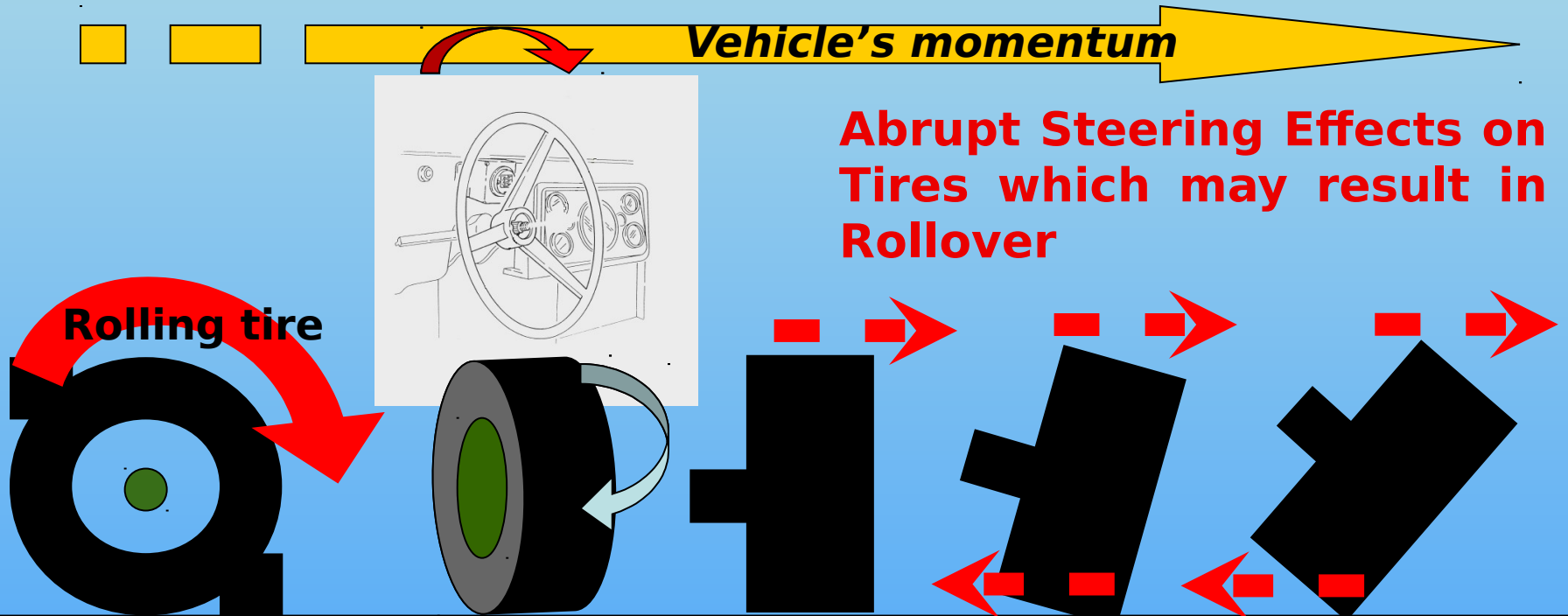


**“EXPERIENCE  
PREVENTS  
ROLLOVERS!”**

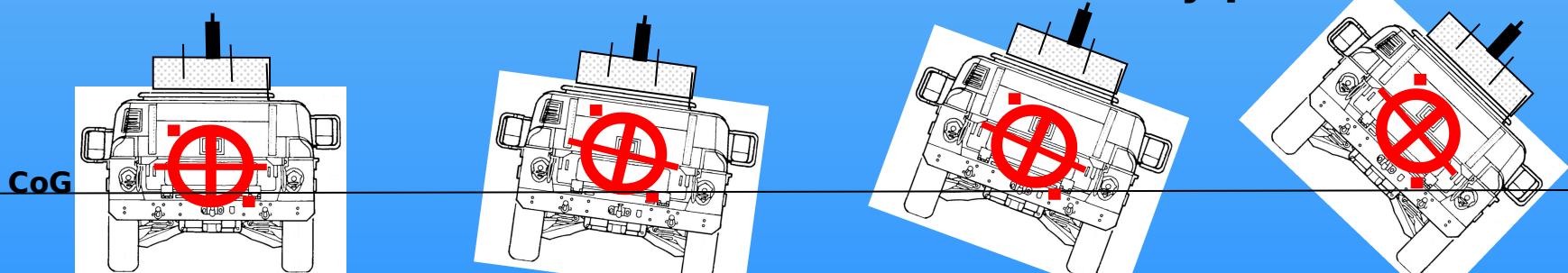


# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## OVERLY AGGRESSIVE DRIVING



The momentum of the Center of Gravity pulls the vehicle over



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **ROAD AND TERRAIN CONDITIONS**



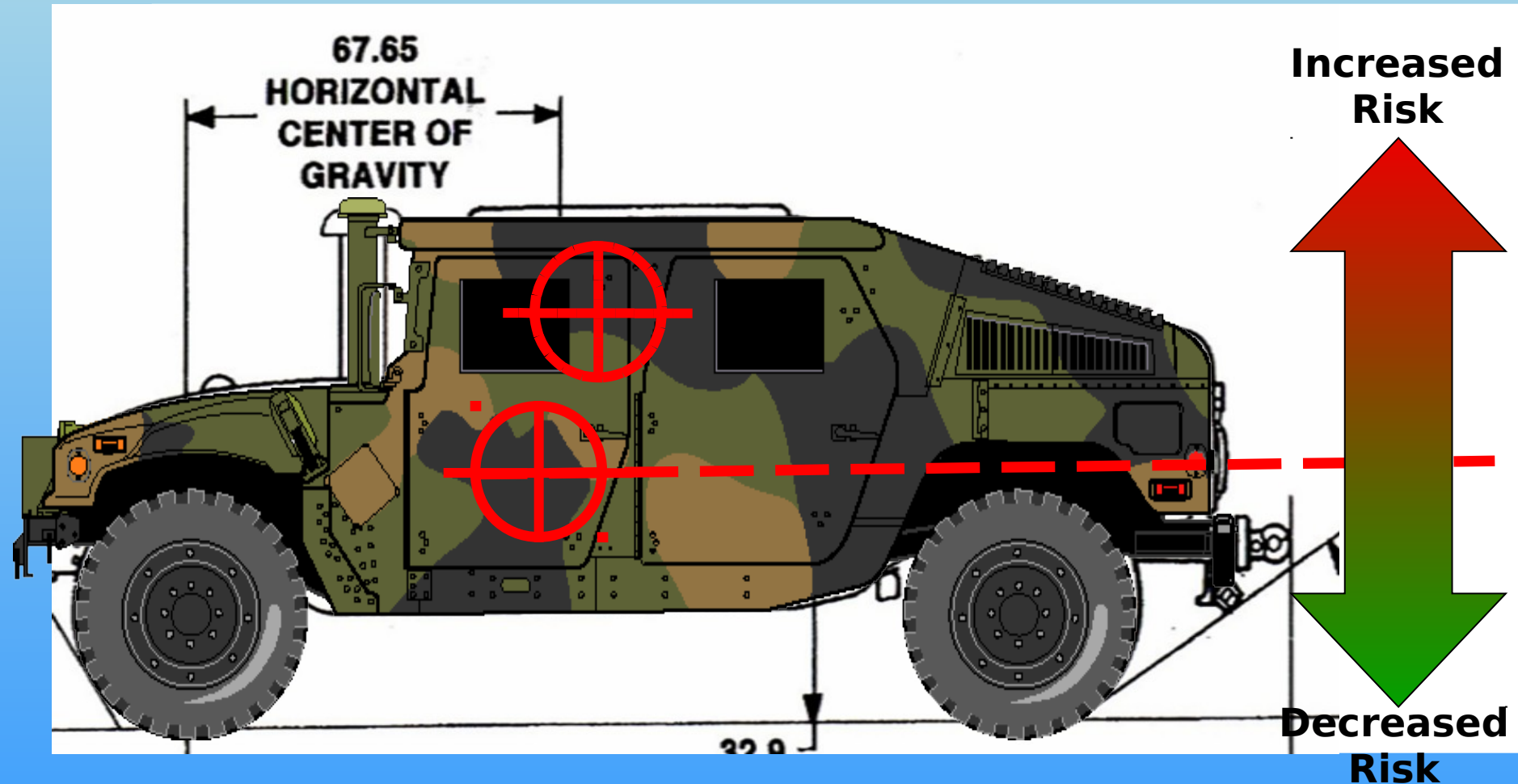
The HMMWV is designed to climb obstacles not push them. This characteristic has caused some vehicle rollovers. Gunner should be mindful and react quickly to duck into vehicle.

## **INADEQUATE DRIVER TRAINING**



# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## CENTER OF GRAVITY



**The Higher the CoG, the Higher the Risk**



# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## VEHICLE PAYLOADS

M1114 Limits

Payload = **2300 lbs**  
or **1043 kg**

- Crew
- Winch
- Gunner's Prot Kit
- Spare Tire
- Weapons
- All cargo

**Secure  
ALL  
items!**

**Don't overload the vehicle**



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **BAD ROAD SURFACE CONDITIONS**





# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **INTERFERENCE FROM LOCAL POPULATION**



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **WATER PRECAUTIONS**

**When in the vicinity of water** and tactical conditions permit:

- Reduce speed and stop vehicle
- Inform crewmembers that you are operating around potential water hazards
- Make a Risk Assessment of the terrain and route before proceeding
- Maintain orientation by wearing seatbelts and
- Unlock combat door locks





# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **EXPLOSIVES DETONATION**



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **TEAMWORK**

- **Work as a Team**
- **Maintain crew integrity**
- **Enforce use of seat belts**
- **Communicate with each other**
- **Identify terrain or conditions for a rollover**
- **Use a ground guide near bodies of water**
- **Team member positioning within the vehicle**
- **Field of views / sectors**



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **QUICK STEPS FOR EMINANT ROLLOVER**

- **ALL - Yell “ROLLOVER, ROLLOVER, ROLLOVER!!”**
- **ALL - Brace against inside structure of vehicle**
- **Driver/TC/PAX - Brace against floorboard**
- **Driver/TC/PAX - Tuck chin into chest**
- **Gunner - Forcefully duck down into gunner cupola**
- **ALL - Attempt to grasp gunner to pull inside vehicle**

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **ACTIONS DURING A ROLLOVER**

- **Driver - Continue to navigate the vehicle as long as control is possible.**
- **ALL - Brace chin down against chest. Keep it there.**
- **DRIVER/PAX/TC - Brace against floorboard and inside vehicle structure.**
- **Attempt to maintain coherent orientation during roll.**
- **GUNNER - MUST drop down inside of gunners' seat as quickly as possible.**
- **Driver/PAX/TC - Attempt to grab and hold gunner into vehicle.**

PLAY VIDEO (12:15)



# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **ACTIONS AFTER A ROLLOVER**

- **ALL - Unplug headset**
- **Release seat belt (use caution, you may be suspended)**
- **Assess injuries**
- **Unlock combat doors**
- **Exit vehicle w/weapon by quickest route**
- **Assist other crewmembers to exit vehicle**
- **Provide security (keep at safe distance)**
- **Recover sensitive items**
- **Assist in vehicle recovery**
- **TC - REPORT accident**

## **Additional steps for WATER EGRESS**

- **Remove LBE. body armor, helmet**
- **Evacuate by shortest route**
- **Rescue others immediately!**
- **Provide FIRST AID and SUMMON MEDICAL AID**

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

## **Check on Learning**

1 - What is the best way to survive a rollover?

**WEAR SEAT BELTS!**

2 - Who in the crew is the most likely to be killed?

**GUNNER**

3 - What promotes a rollover to occur?

**SPEED**

4 - What additional precaution should the vehicle crew take when operating near water?

**UNLOCK COMBAT DOOR LOCKS**

5 - The higher the Center of Gravity the higher the

— **RISK**

# **HMMWV ROLLOVER PREVENTION AND SURVIVAL**

**SURVIVE the  
Rollover!**





# HMMWV ROLLOVER PREVENTION AND SURVIVAL

## Training Resources

### TRAINING PROGRAM FOR WHEELED VEHICLE ACCIDENT AVOIDANCE

TC 21-305

GTA 55-03-030  
For Official Use Only  
HMMWV UPARMORED  
Emergency Procedures  
Performance Measures

#### WARNING

Never attempt to jump from a rolling vehicle. It may roll over you. Ensure that the vehicle has stopped rolling before exiting. Upon complete evacuation of the crew, vehicle should be inspected for fire hazards such as leaking oil, fuel, ammunition and hydraulic fluid. If hazardous/explosive materials are involved, driver must take actions according to the DD Form 836 accompanying load. Notify rescue personnel and remain at evacuation distance while securing accident site.

20 May 05

#### ROLLOVER DRILL (CONT):

##### d. Crew --

- (1) Yells, "Rollover!"
- (2) Pulls Gunner into cab.
- (3) Tucks head and chin into chest and braces for impact.
- (4) Plants feet firmly on the floor while holding onto a stationary object.

##### 2. After the rollover has stopped:

- (1) Disconnects headset.
- (2) Releases seatbelt, uses caution if upside down.
- (3) Assesses injuries.
- (4) Unlocks combat door locks.
- (5) Exits the vehicle with weapon.
- (6) Assists crew to exit.
- (7) Establishes security.
- (8) Accounts for sensitive items.
- (9) Provides first aid.
- (10) Recovers sensitive items.
- (11) Assists in vehicle recovery.

#### PREVENTIVE MEASURES:

**Slow Down.** Watch for sharp curves and steep slopes. Curves and slopes generate centrifugal forces that add sideways on the vehicle, increasing the chance of rollover.

**Avoid panic-don't jerk the steering wheel.** Many rollovers occur when the driver panics and jerks the steering wheel during an emergency. At highway speeds, jerking the steering wheel can cause loss of control and the vehicle may slide sideways and roll over.

**Know proper maneuvering.** If you drive off the side of a road, gradually reduce speed. Ease your vehicle back onto the roadway at a safe speed.

**Use caution on rural roads/roads with soft shoulders.** When a vehicle goes off a road, or no shoulders, the vehicle can slide into a ditch or be trapped by soft soil.

**Pay attention to vehicle condition, tire pressure and loading.**

- Pay particular attention to tire condition and air pressure during FMCS to reduce potential hazards. Monitor FMCS to reduce potential hazards. Monitor FMCS to reduce potential hazards.
- Don't overload the vehicle. The M1114 payload is 2000 lbs. This includes the passengers, weapons, gear, protection kit, spare tire, weapons, and all gear.
- Keep the Vehicle Center of Gravity Low. Load heavier items low in the vehicle.

#### ROLLOVER DRILL (CONT):

##### b. Vehicle Commander--

- (1) Disconnects headset.
- (2) Releases seatbelt, uses caution if upside down.
- (3) Assesses injuries.
- (4) Unlocks combat door locks.
- (5) Exits the vehicle with weapon.
- (6) Assists crew to exit.
- (7) Establishes security.
- (8) Accounts for sensitive items.
- (9) Provides first aid.
- (10) Recovers sensitive items.
- (11) Assists in vehicle recovery.

#### Work As A Team:

**Communicate with the driver--tell the driver what is to the left, right, rear, and overhead.** Your gunner is your eyes and ears! The gunner must be the only crew member capable of seeing around the entire vehicle. Use the vehicle intercom system to pass visual information to the driver. But release should voice commands and hand signals in case the intercom is inoperative. Avoid hazards. Use a ground guide whenever possible.

#### Wear seatbelts.

Survive the rollover!

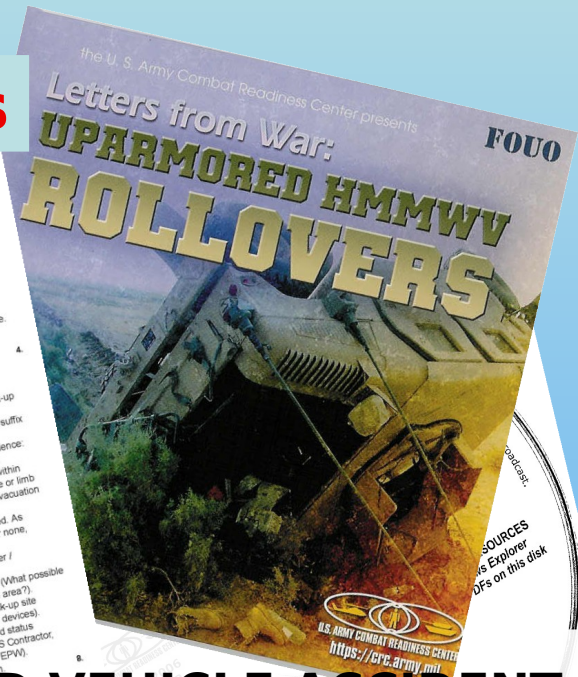
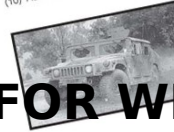
**Use combat locks--safely.** Combat locks help keep the doors closed in a crash, but are a hazard near water (enemy situation permitting).

**Know how to get out.** Release vehicle evacuation as if only one exit is available.

#### ROLLOVER DRILL (CONT):

##### d. Crew--

- (1) Disconnects headset.
- (2) Releases seatbelt, uses caution if upside down.
- (3) Assesses injuries.
- (4) Unlocks combat door locks.
- (5) Exits the vehicle with weapon.
- (6) Assists crew to exit.
- (7) Provides security.
- (8) Provides first aid.
- (9) Recovers sensitive items.
- (10) Assists in vehicle recovery.



## TC 21-305 TRAINING PROGRAM FOR WHEELED VEHICLE ACCIDENT AVOIDANCE

## GTA 55-03-030 HMMWV UPARMORED

## Emergency Procedures Performance Measures, 20 May 05

## GTA 55-03-031 Water Egress HMMWV Uparmored Rollover Task

and

## Performance Measures, July 05

## UPARMORED HMMWV ROLLOVERS CD Pin 711722

<http://www.transchool.eustis.army.mil/training/nonresident/drivwe>